

Environmental Education Awareness Strategies and Sustainable Farming Practices in Cross River State, Nigeria

By

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Abstract

The purpose of the study was to ascertain the relationship between environmental education awareness strategies and sustainable farming practices in Cross River State, Nigeria. Two research questions and two null hypotheses were formulated and tested at 0.05 level of significance. Correlational research design was used for the study. The population of the study consisted of all the 73,002 registered farmers in Cross River State, who are enlisted in the respective senatorial district. Purposive and accidental sampling techniques were used to select a sample size of 1, 443. “Environmental Education Awareness Strategies and sustainable Farming Questionnaire (EEASSFQ)”- was used for data collection. The instrument was validated by three experts. One expert was from Measurement and Evaluation and two from Department of Continuing Education and Developmental Studies, all from University of Calabar. The reliability of the instrument was established through Cronbach alpha method. The reliability index ranged from .72 to .87. Simple linear regression was used to analyze the data collected for the study. The findings of the study revealed that there was a significant relationship between the variables of environmental education awareness strategies and sustainable farming practices in Cross River State, Nigeria. Based on these findings it was recommended among others that awareness creation through use of traditional plays and faith-based organizations be adopted as a sustainable farming practices awareness strategy and made an integral part of community norms and values by community elders and chiefs.

Key words: Environmental education, awareness strategies, and sustainable farming practices,

Introduction

For a very long time, people have been farming in order to create food. Farming is an activity that includes collecting Non-Timber Forest Products (NTFPs), raising crops, and caring for animals. In order to produce crops, raise animals, and extract non-timber forest products, humanity have altered the natural environment through farming practices. This means that people would not be able to farm without altering the natural environment, and without farming, people would not have food to eat. In the past, there was no issue with how the natural environment was modified by farming practices because the environment was not perceived as a necessity which should be cared for. In recent times, such perceptions are drastically changing due to the numerous environmental challenges (flooding, deforestation, climate change and resource depletion among others) brought about mainly by man’s actions on the environment. One of the major ways in which man’s actions have served to bring about the environmental challenges is through land modification processes and practices (James & Ngala, 2015 cited in Igwebuike & Etan, 2018).

One of the organizations in Cross River State that assists farmers in adjusting to new developments in farming methods is the Cross River Agricultural Development Programme (CRADP). Officers from the state's extension services work to educate farmers on modern farming methods by designating agricultural zones. Educating farmers on technologies related to farm clearing, land preparation, planting materials, planting time, cropping system, weeding, soil fertility, mulching, staking, harvesting, and agricultural product storage is one of the extension services provided in the study area, which is Cross River State (Ibok, Ekanem & Umoh, 2019). The state is

given a lot of attention in terms of agricultural produce based on the fact that it is amongst the top five states in the country in terms of cocoa, cassava, yam and plantain production (Ofori, Fobil & Odia, 2018).

Concerns about farmers' interactions with the environment have arisen recently because of the need to lessen some of the effects of environmental changes, such as climate change. The implementation of regulations and incentives to promote environmental awareness and sustainable behaviour, working with NGOs and environmental organizations to develop and deliver educational programs and materials, and using media, social platforms, and events to inform the public about environmental issues and sustainable practices are some of the environmental education strategies that have been introduced as a result of environmental challenges. This brought about the advent of “sustainable farming practices such as crop rotation (alternating crops in a field to maintain soil health and prevent pest build-up), cover cropping (planting crops to cover soil between growing seasons to prevent erosion and improve soil quality), integrated pest management (using a combination of biological, cultural and chemical methods to control pests while minimizing environmental impact), conservation tillage (reducing soil disturbance to maintain soil structure and prevent erosion), precision agriculture (using technology to optimize resource use and reduce waste in farming operations), agro forestry (integrating trees and shrubs into crop and animal farming systems), organic farming (avoiding synthetic pesticides and fertilizers in favour of natural alternatives), water conservation techniques (implementing efficient irrigation systems and water management practices) and rotational

grazing (moving livestock between pastures to prevent overgrazing and maintain grassland health)". The long-term productivity of farmlands is what these techniques are meant to guarantee. Because of its significance for agricultural products, there have been concentrated attempts to raise awareness of contemporary farming methods in the research area (Yadav, Yadav, Mishra, & Sachan, 2020).

The use of excessive amounts of pesticides and herbicides, the annual felling of all forest trees on newly cleared farmland, bush burning, the failure to use improved crop varieties during planting, the shortened fallow periods for intended farmlands, unsustainable soil management practices, and the harvesting of non-timber forest products are all practices that farmland users engage in despite land use regulations set forth by government-based agencies within the study area. Reduced crop yield, soil nutrient mining (leaching of the natural nutrients in the soil), high concentrations of chemicals in water bodies, soil erosion, deforestation, and the extinction of exotic plant and animal species were all consequences of the aforementioned practices. In addition to the consequences mentioned, it is concerning because there are also perceived long-term effects, such as the loss of farmlands as a result of poor soils in this age of population growth. In light of this, this study was carried out in order to determine the connection between sustainable agricultural methods in Cross River State and environmental education awareness practices.

Objectives of the study

The study sought to:

1. determine the relationship between use of faith-based organizations and sustainable farming practices in Cross River State; and
2. find out the relationship between use of traditional plays and sustainable farming practices in Cross River State.

Research hypotheses

The following hypotheses were formulated to guide the study;

H₀₁ There is no significant relationship between use of faith-based organizations and sustainable farming practices in Cross River State, Nigeria.

H₀₂ There is no significant relationship between use of traditional plays and sustainable farming practices in Cross River State, Nigeria.

Literature review

Faith-based organizations' activities and sustainable farming practices

In the modern era, faith-based organizations, or FBOs, are religious agents that contribute to social change. This claim is still up for debate based on differing opinions from many facets of human society. Donor organizations, for example, which represent organized civil society perspectives, challenge this claim, as James (2017) reiterates. Without a doubt, FBOs offer social, health, and educational services as well as human development services. The moral competence of FBOs, their roots in both rural and urban communities, and the respect and confidence of both their members and recipients are some of the comparative advantages that they are thought to have over secular social service providers.

According to James (2017), FBOs have been at the vanguard of social movements and service delivery in development for decades, but donors have ignored them. Research on the activities of FBOs in Nigeria is relevant since it is acknowledged that faith is essentially a major force behind societal transformation. Throughout history, agriculture and religion have been natural bedfellows. This is particularly clear from the way that religious traditions have consistently influenced agricultural development and practice around the globe.

Farming God's Way: agronomy and faith challenged is the title of a research conducted by Sapling and Kooy (2019). Farming God's Way (FGW) is a form of conservation agriculture (CA), according to the authors, that reinterprets the CA concepts of crop rotation, mulching, and no tillage by utilizing biblical metaphors such as the Garden of Eden, God's blanket, and God doesn't plow. Through faith-based networks, FGW has expanded throughout Sub-Saharan Africa and beyond as a development intervention to help resource-poor farming households improve their soil productivity, adapt to climate change, and increase food security. In order to determine which claims are disputed, this study identifies and contrasts FGW's production, sustainability, and faith claims. A qualitative study of Canadian program managers with responsibilities for CA or FGW projects in Africa and smallholding FGW farmers in Kenya is employed using semi-structured interviews and focus groups. Production-related claims of improved soil moisture and climate change adaptation are generally consistent among program managers, farmers and the literature, but social claims of increased labour demand on women and religious claims of faith enhancing CA are contested. Findings show that female farmers unanimously contest the claim that their labour for weeding is increased under FGW. Similarly, FGW farmers contest the claim that faith inhibits adoption or innovation on the farm, reporting instead that FGW connects faith to their vocation, transforms why and how they farm, and changes mindsets for adopting faith-based conservation agriculture.

Churches and faith-based organizations (FBOs) are actively promoting Farming God's Way (FGW) as a development intervention to help resource-poor farming households in Sub-Saharan Africa improve their soil productivity, adapt to climate change, and increase food security.1. Conservation agriculture (CA) and FGW are synonymous, however FGW is rooted on a theocentric (God-centered) belief system that invokes God as the First Farmer who does not plough, views mulch as God's blanket, and imitates biodiversity and other natural processes that are ascribed to the Garden of Eden. Two. The three conservation agriculture agronomic principles—crop rotation, mulching, and no tillage—are represented by these biblical analogies (Spaling & Kooy, 2019).Donisian (2017), carried out a research work titled the role of faith-based organizations in the enhancement of the social welfare among the rural poor households in Nyamweru Sub-County, Kabale district: a case study of Caritas Kabale Diocese. According to the author, faith-based organizations (FBOs) have for a long time committedly made positive contributions towards provision of education, support in agriculture, skills, health to enhance social welfare but some people in rural areas still have low income, have poor health

standards, have no food security, and have limited skills and lack employment due to low levels of education hence poor social welfare. This study was conducted to assess the contribution of FBOs (Caritas –Kabale Diocese) in enhancement of the social welfare among the rural poor people in Nyamweru Sub- County. This study was guided by the following objectives; to examine the role played by FBOs in enhancement of social welfare among the rural poor households; to identify the challenges faced by FBOs in enhancement of social welfare among the rural poor households and to establish the strategies that have been put in place to improve FBOs performance in enhancement of social welfare among the rural poor households. The study used a case study design which was backed up by qualitative approach. The study used a sample size of 80 respondents and these were selected both randomly and purposively. The data collection instruments used in this study included questionnaires, interview guide and focus group discussions. The analysis of data was done using descriptive statistics such as frequencies and percentages. From the findings, it was revealed that the roles of FBOs including Caritas Kabale Diocese are important in improving the welfare of rural poor households. A research by Lang (2018) examined the influence of religion in agriculture: insights from Cameroon's Bamenda Grass fields since pre-colonial times. Since the beginning of human communities, the author claims, the relationship between religion and growth in the widest sense has remained resilient. There is evidence of the dynamic involvement of religion in a variety of developmental sectors in communities all throughout the world. The study's focus, agriculture, is one of the economic sectors where religious organizations and influences have had a significant impact.

Traditional plays and sustainable farming practices

Conventional plays have a vital role in environmental protection and communication. These media serve as the society's actual representatives. It serves as a vehicle for delivering instruction and information in entertaining ways. A wealth of folk art, folktales, folk dances, songs, and dramas can be utilized for development projects in developing nations. For both literate and illiterate societies with rich cultural legacies, these media have the ability to convey developmental lessons. They are able to overcome the effort of language, conversation, and words as well as other hurdles to communication, such as comprehension, clarification, curiosity, attitude, and perception. Folk media's appropriate idioms, meaningful purpose, and entertainment value make it incredibly influential on rural society. In addition to using communication and education as a combined tool for policymaking, traditional media can incorporate environmental concerns into development policy. Our nation's patriotism movement has benefited greatly from the use of folk tunes. "Public participation can result in better environmental quality outcomes and enhances the decision's legitimacy and quality" (Paul, Stern & Dietz, 2008 in Polbitsyn & Earl, 2019).

Kabadayi (2018) carried out a study on Traditional play and Technological Methods for Raising Pre-school Childrens' Awareness of Environmental Pollution for

Sustainability. According to the author, in the preschool period children develop rapidly in cognitive, social-emotional, physical, psycho-motor, language, and aesthetic areas. In this period, besides basic habits and skills, it is important for children to gain environmental awareness. Research shows that children are mostly affected by environmental problems. Yet, living in a clean and healthy world is a basic necessity for children. For this reason, it is possible that children can show a healthy development in all developmental areas and create a healthy future by establishing ecological balance through gaining environmental awareness during the preschool period for sustainability. Science and nature activities in the preschool education program play an important role in creating an environmental awareness of the children in this period as they include activities to acquire environmental awareness and provide important contributions to helping children gain environmental awareness for sustainability. The present study was conducted using a total of 80 students attending pre-school institutions in Konya province. The environmental pollution awareness scale was used as pre ñ test and post ñ test prepared by the researchers. The data was analyzed via the SPSS 18 program. As the post test scores of preschool students revealed, there was a significant difference for the experimental group with regard to environmental pollution awareness.

Khamung (2014) carried out A Study of Cultural Heritage and Sustainable Agriculture Conservation as a Means to Develop Rural Farms as Agritourism Destinations. According to the author, Rural communities possess advantages of natural resources and culture heritage to attract agritourism development; its success will greatly increase if rural communities observe and practice self-sufficiency farming and employ sustainable agriculture practices while preserving their local cultural heritage. The objective of this paper is to investigate the rural cultural heritage, the agricultural landscape, the local traditions, the local sustainable agriculture practices, the locally practiced sustainable conservation methods, and farmers sensitivity to conservation that are appropriate for agritourism development. In addition, the conservation of local farming traditions and cultural heritage can serve as the basic foundation for agritourism destination farm development. The awareness of vernacular landscape, culturally constructed landscape, farming livelihood, cultural heritage, and traditional self-sustaining agricultural practices are the strong building blocks to foster prosperity, ecological integrity, cultural identity, social well-being, self-sufficiency, biodiversity, and sustainable conservation in rural villages that wish to become the agritourism destination.

Methodology

The correlational research design was used in this study. This design involves the collection of data to accurately and objectively describe existing phenomena. The population of the study consisted of all the 73,002 registered farmers in Cross River State, who are enlisted in the respective senatorial district. A manageable and sizeable sample size of 1, 443 respondents was selected for the study using purposive and accidental sampling techniques.

The instrument used for data collection was a structured questionnaire titled “Environmental Education Awareness Strategies and sustainable Farming Questionnaire (EEASSFQ)” designed by the researcher and validated by three experts. One in measurement and evaluation and two in department of continuing education and development studies, University of Calabar – Calabar. To determine the reliability of the instrument a trial testing was done using 50 respondents drawn from the study area with similar characteristics who were not included in the main study. A set of items was administered to the respondents after an interval of two weeks. The Cronbach Alpha reliability coefficient was used to test the degree of consistency of the instrument. They were found to range from .72 to .87. This implies that the instrument was reliable enough to be used for this investigation. The procedure for data analysis was based on the already structured research hypothesis. Prior to the administration of the questionnaire to the respondents (registered farmers), the researcher secured information on the venue and date of registered farmers meetings per LGAs of the sampled area. This the researchers attended with five other trained research assistants to other locations depending on the LGAs. At the meeting venue after the farmers had concluded their meeting deliberations, the researchers and their assistants respectively formally introduced themselves stating the aim of their visit, after which the questionnaire was administered to the respondents. Simple regression statistical technique was used to analyzed data for the study.

Presentation of results

The two research hypotheses were stated and tested in order to provide solution to the problem of this study. Each hypothesis was tested at .05 significant level.

Hypothesis one

There is no significant relationship between use of traditional folk media and sustainable farming practices in Cross River State, Nigeria. The independent variable is use of faith-based organizations while the dependent variable is sustainable farming practices in Cross River State. In analyzing the hypothesis simple regression statistical analysis was used and result shown in Table 1.

TABLE 1

Simple regression analysis on the relationship between use of faith-based organizations and sustainable farming practices in Cross River State

Variable	R	R ²	Adj. R ²	Std. Error	
Faith-based organizations	.189 ^a	.036	.034	2.229477	
Source of variation	SS	Df	MS	F	p-value.
Regression	349.876	1	98.211	8.51*	.023 ^b
Residual	3982.527	1441	11.495		
Total	4332.403	1442			

*Significant at p <.05

The analysis in Table 1 showed that the Adj R² is 0.034. This implies that 3.4% of the variance in the dependent variable (sustainable farming practices) could be accounted for by use of faith-based organization activities. However, though the percentage contribution is small, a cursory look at the table showed that F=8.511 (p<.05) is significant. Also since p(.023) is less than p(.05), it implies that use of faith-based organizations’ activities have a significant relationship with sustainable farming practices in Cross River State, Nigeria. Therefore, the stated null hypothesis is rejected and the alternate hypothesis upheld. This implies that use of faith-based organizations has a strong positive relationship with sustainable farming practices in Cross River State Nigeria.

Hypothesis two

Use of traditional plays has no significant relationship with sustainable farming practices in Cross River State, Nigeria. The independent variable is traditional play while the dependent is sustainable farming practices in Cross River State. In analyzing the hypothesis simple regression statistic was used and the result of the analysis in stated in Table 2.

TABLE 2

Simple regression analysis on the relationship between use of traditional plays and sustainable farming practices in Cross River State

Variable	R	R ²	Adj. R ²	Std. Error	
Traditional folk media	.172 ^a	.030	.028	2.132111	
Source of variation	SS	Df	MS	F	p-value.
Regression	638.301	1	121.281	11.19*	.011 ^b
Residual	3694.102	1441	12.110		
Total	4332.403	1442			

*Significant at p <.05

The analysis in Table 2 showed that the Adj R² is .008. This implies that 0.8% of the variance within dependent variable (sustainable farming practices) could be accounted for by use of traditional plays. However, though the percentage contribution is small, a cursory look at the table showed that F=0.153 (p>.05) is not significant. Also since p(.0721) is greater than p(.05), it implies that indeed use of traditional plays has no significant relationship with sustainable farming practices in Cross River State, Nigeria.. Therefore, the stated null hypothesis is upheld. This implies that use of traditional plays has a strong negative relationship with sustainable farming practices in Cross River State Nigeria.

Discussion of findings

Use of faith-based organizations’ activities and sustainable farming practices

According to the results of the analysis in hypothesis one, the alternative hypothesis was maintained and the null hypothesis was abandoned. Consequently, it suggested that there is, in fact, a substantial correlation between the operations of faith-based organizations and environmentally friendly agricultural methods in Cross River State. The findings are consistent with James' (2017) assertion that Faith-Based Organizations (FBOs) are religious agents that facilitate social change in the modern era. Based on differing opinions from various facets of human society, this claim is still up for debate. Donor agencies, for example, represent organized civil society's perspectives. However, FBOs are valued to have comparative advantages over secular social service providers, for example, their moral competence, their roots within rural and urban communities, the respect and trust of their members as well as their beneficiaries. According to James (2017), FBOs have been at the vanguard of social movements and service delivery in development for decades, but donors have ignored them. Research on the activities of FBOs in Nigeria is relevant since it is acknowledged that faith is essentially a major force behind societal transformation. Throughout history, agriculture and religion have been natural bedfellows. This is particularly clear from the way that religious traditions have consistently influenced agricultural growth and practice around the globe.

Use of traditional plays and sustainable farming practices

The findings from analysis of the second hypothesis showed that the null hypothesis was upheld implying that indeed traditional play has no significantly relationship with sustainable farming practices in Cross River State. This finding contradicts the finding of Kabadayi (2018) who carried out a study on Traditional play and Technological Methods for Raising Pre-school Childrens' Awareness of Environmental Pollution for Sustainability. The author discovered that Science and nature activities in the preschool education program play an important role in creating an environmental awareness of the children in this period as they include activities to acquire environmental awareness and provide important contributions to helping children gain environmental awareness for sustainability.

Furthermore, the current results are in conflict with those of Bıcakcı (2021), who conducted research on the "play for nature" project, which used music to raise public awareness of environmental issues. This study looks at a nonprofit program called "Play for Nature" that uses music as a tool to raise environmental awareness among the general public. From a public relations perspective, the project's strengths and limitations are carefully examined. The project's creator and organizer in Turkey, Fırat Çavaş, conducts an online interview after gathering data through relevant media coverage. According to the conclusion, a project that uses social media and music to reach millions of people should be managed with a strategic communication approach in order to achieve its primary goal. For the next phase of the project, the study provides Play for Nature with a useful communication framework.

Conclusion and Recommendations

Based on the result of the study the following conclusions were reached that: There is a significant relationship between use of

traditional plays and sustainable farming practices in Cross River State, Nigeria. Use of faith-based organizations' activities has no significant relationship with sustainable farming practices in Cross River State, Nigeria.

Based on the findings of the study, the following recommendations were made:

1. Awareness creation on traditional plays through folk media as a sustainable farming practices awareness strategy should be improved and made an integral part of community norms and values by community elders and chiefs.
2. Information on sustainable farming practices should be shared through the use of faith-based organizations to sensitize community members on the importance of cultivating healthy sustainable farming practices.

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